DOCUMENT RESUME

ED 022 938 08 VT 006 893

By-Rahmlow, Harold F.; And Others

OCCUPATIONAL MATHEMATICS; DIVISION OF FRACTIONS. REPORT NO. 16-H, BOOKLET II. FINAL REPORT.

Washington State Coordinating Council for Occupational Education, Olympia.; Washington State Univ., Pullman. Dept. of Education.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Bureau No-BR-7-0031
Pub Date Jun 68
Grant-OEG-4-7-070031-1626
Note-103p.
EDRS Price MF-$0.50 HC-$4.20
Descriptors-*ARITHMETIC, *DIVISION, *FRACTIONS, *PROGRAMED TEXTS, *VOCATIONAL EDUCATION

This programed mathematics textbook is for student use in vocational education courses. It was developed as part of a programed series covering 21 mathematical competencies which were identified by university researchers through task analysis of several occupational clusters. The development of a sequential content structure was also based on these mathematics competencies. After completion of this program the student should know that "quotient" indicates division and be able to: (1) divide a fraction of the form a/b, where 0 is less than (a,b) and these are less than 100, by a positive integer less than 100, (2) divide a fraction of the form a/b by a fraction of the form c/d, where 0 is less than (a, b, c, d) and these are less than 100, (3) divide mixed numbers by mixed numbers where the mixed numbers are of the form Xa/b where 0 is less than (X,a,b) and these are less than 100, (4) divide literal fractions, and (5) divide any combination of letters, fractions, integers, and mixed numbers listed above. The material is to be used by individual students under teacher supervision. Twenty-six other programed texts and an introductory volume are available as VT 006 882-VT 006 909, and VT 006 975. (EM)

BOOKLET 11

OF

Report No. 16-H

Occupational Mathematics

DIVISION OF FRACTIONS

Hello, again! You have been doing very well. Let's continue our unit on the division of fractions. You know that we can divide by integers or fractions. However, there is one number we can NEVER divide by. That is the number ZERO.

Here is your next problem.

$0 \div 2/3 = ?$

(a) Can't divide by zero Turn to page 121

(b) 0 (zero) Turn to page 111

Correct! 15 is the right answer.

$14 \div 7/8 = ?$

(a) 1/16 Turn to page 109

(b) 16 Turn to page 113

(c) 8/7 Turn to page 128

Correct!

One more:

3/4 ÷ 0 = ?

(a) Can't divide by zero Turn to page 107

(b) 0 Turn to page 124

Correct:

Now, what does 3 ÷ 2/3 equal?

(a) 3/1 x 3/2 Turn to page 113

(b) 3/3 x 3/2 Turn to page 125

(c) 3/1 x 2/3 Turn to page 90 in Booklet I

(d) 1/3 x 2/3 Turn to page 109

Incorrect.

You seem to be having trouble with division of fractions. Let's go back and look at the main ideas again.

Turn to page 15 of Booklet I and be more careful in your work this time.

Good! Correct.

Now let's try this one again.

3 ÷ 2/5 = ?

(a)	15/2	Turn to page 135
(b)	2/15	Turn to page 109
(c)	6/5	Turn to page 75 in Booklet I

Very good! You can never divide by zero.

$3 \div 2/5 = ?$

(a)	7 1/2	Turn to page 112
(b)	2/15	Turn to page 109
(c)	5/2	Turn to page 131
(d)	15/2	Turn to page 127

Incorrect:

Zero divided into any number of parts is still "nothing." You know what "nothing" is, don't you? Yep! It's a bladeless knife without a handle. Get it?

In other words, zero divided by any number is still zero.

0 ÷ 4 = ?

(a) Can't divide by zero — Turn to page 110

(b) 4 — Turn to page 110

(c) 0 — Turn to page 126

Incorrect. Let's look at an example problem.

3 ÷ 2/5 reads "3 divided by 2/5." Therefore, 2/5 is the divisor.

4 ÷ 3/7 = ?

(a) 28/3 Turn to page 113

(b) 3/28 Turn to page 90 in Booklet I

You seem to be having trouble.

Go see your teacher and tell him your trouble.

Then return to page 101 of Booklet II of this Unit and continue.

Okay!

Now, what's 2/5 ÷ 0?

(a) Can't divide by zero Turn to page 107

(b) 0 Turn to page 124

Correct! 7 1/2 is the correct answer.

Is 15/2 correct for 3 ÷ 2/5 as well as 7 1/2?

(a) Yes Turn to page 135

(b) No Turn to page 122

Now you've got it!

$6 \div 2/3 = ?$

(a) $\frac{6 \times 2}{1 \times 3} = 4$ Turn to page 75 in Booklet I

(b) $\frac{1 \times 2}{6 \times 3} = 1/9$ Turn to page 90 in Booklet I

(c) $\frac{6 \times 3}{1 \times 2} = 9$ Turn to page 106

While we can divide integers by changing them to fractions, there is one number we can NEVER divide by. That number is ZERO.

$0 \div 2/3 = ?$

(a) 0 Turn to page 111

(b) Can't divide by zero Turn to page 121

My goodness! You are having trouble, aren't you?

Let's study another example. 1/2 ÷ 3 means that the fraction 1/2 is to be divided into 3 parts. So, if we took  and divided it into  's, each part would then be what fraction of the whole? 1/6 is correct.

In the example, what number is the divisor?

(a)	1/2	Turn to page 2 in Booklet I
(b)	1/6	Turn to page 105
(c)	3	Turn to page 130

Very good!

Let's do it all the way this time.

$5/6 \div 3 = ?$

(a)	5/2	Turn to page 75 in Booklet I
(b)	5/18	Turn to page 106
(c)	18/5	Turn to page 115

Correct!

Zero divided by any number, except itself, is always zero.

$0 \div 2/7 = ?$

(a) Can't divide by zero Turn to page 119

(b) 0 Turn to page 103

Correct!

$3/8 \div 2 = ?$

(a) 3/16 Turn to page 139

(b) 3/4 Turn to page 129

(c) 16/3 Turn to page 123

Incorrect.

You're dividing by 2/7, not zero.

Try again.

What's 0 ÷ 3?

(a) 0 Turn to page 103

(b) 3 Turn to page 108

Correct!

Let's do another.

7/8 ÷ 5 = ?

(a) 7/8 x 1/5 Turn to page 116

(b) 8/7 x 5/1 Turn to page 115

Incorrect.

You ·not dividing by zero; you are dividing by 2/3.

0 ÷ 3 = ?

(a) Can't divide by zero Turn to page 110

(b) 3 Turn to page 108

(c) 0 Turn to page 117

Incorrect.

$3 \div 2/5 = 3/1 \times 5/2 = 15/2$.

However, 15/2 may be written as the mixed number 7 1/2. So 15/2 and 7 1/2 are both correct answers for $3 \div 2/5$.

Turn to page 135.

I'm sorry, but you must have misunderstood.

When you divide by an integer, you multiply by its reciprocal.

Example: $2/7 \div 3 = 2/7 \times 1/3 = \frac{2 \times 1}{7 \times 3} = 2/21.$

$3/8 \div 4 = ?$

(a) $8/3 \times 4$ Turn to page 115

(b) $3/8 \times 1/4$ Turn to page 120

(c) I need more help Turn to page 105

Whooops! Caught you napping. Can't divide by zero, remember?

Go to page 114 and continue.

You seem to have trouble multiplying fractions.

Go to Unit 6 and review the multiplication of fractions.

Then return to page 1 of Booklet #1 of this Unit.

Correct.

Zero divided by any number, except itself, is always zero.

$0 \div 2/7 = ?$

(a) Can't divide by zero Turn to page 119

(b) 0 Turn to page 103

Good. 15/2 is a correct answer.

Is 7 1/2 correct for 3 ÷ 2/5, as well as 15/2?

(a) Yes Turn to page 135

(b) No Turn to page 122

I'm sorry, but you must not have understood the last question.

When multiplying a fraction by an integer, we change the integer to a fraction, then multiply.

Example: $5 \times 2/3 = 5/1 \times 2/3 = \frac{5 \times 2}{1 \times 3} = 10/3.$

$14 \times 8/7 = ?$

(a) $\frac{14 \times 8}{14 \times 7}$ Turn to page 125

(b) $\frac{14 \times 8}{1 \times 7}$ Turn to page 104

I'm sorry, but you must have misunderstood.

When you divide by an integer, you multiply by its reciprocal.

Example: $2/7 \div 3 = 2/7 \times 1/3 = \frac{2 \times 1}{7 \times 3} = 2/21.$

$3/8 \div 4 = ?$

(a) $8/3 \times 4$ Turn to page 115

(b) $3/8 \times 1/4$ Turn to page 120

(c) I need more help Turn to page 105

Okay. Now the rule for division is to multiply the dividend by the reciprocal of the divisor.

So, 5/6 ÷ 3 = ?

(a) 5/6 x 1/3 Turn to page 116

(b) 5/6 x 3/1 Turn to page 90 in Booklet I

(c) 6/5 x 3/1 Turn to page 105

Incorrect.

The number 3 is equal to the fraction 3/1. Therefore,

$$3 \div 2/5 = 3/1 \div 2/5 = 3/1 \times 5/2 = 15/2.$$

$5 \div 1/? = ?$

(a) 1/15 Turn to page 109

(b) 15 Turn to page 102

(c) 3 Turn to page 128

Very good!

Let's continue.

$x/3 \div y/5 = ?$

(a) $5x/3y$ Turn to page 157

(b) $3y/5x$ Turn to page 146

(c) I don't know how to work with letters
Turn to page 153

Incorrect. The divisor was 6.

So, applying our rule for division:

$$8/3 \div 6 = 8/3 \times 1/6 = \frac{8 \times 1}{3 \times 6} = 8/18 = 4/9.$$

Try this one.

2/5 ÷ 4 = ?

(a) 8/5 Turn to page 105

(b) 10 Turn to page 115

(c) 1/10 Turn to page 118

Incorrect.

1 4/5 = 9/5

and

2 1/3 = 7/3.

Try again.

2 1/5 ÷ 4 3/4 = ?

(a) 11/5 ÷ 19/4 Turn to page 144

(b) 1/10 ÷ 3/16 Turn to page 110

Correct.

Let's continue.

8/3 ÷ 6 = ?

(a) 9/4 Turn to page 133

(b) 4/9 Turn to page 143

(c) 3/8 Turn to page 105

Incorrect.

2 1/3 ÷ 2 3/4 = ?

(a) 7/3 ÷ 9/4 Turn to page 169

(b) 7/3 ÷ 3/8 Turn to page 145

(c) 7/3 ÷ 11/4 Turn to page 149

Correct!

3 1/4 ÷ 2 3/7 = ?

(a) 13/4 ÷ 7/17 Turn to page 142

(b) 13/4 x 7/17 Turn to page 148

(c) 13/4 ÷ 6/7 Turn to page 147

Incorrect.

When dividing mixed numbers, we first change them to fractions and then divide.

Example:

1 3/8 ÷ 2 1/3 = 11/8 ÷ 7/3 = 11/8 x 3/7 = 33/56.

3 3/5 ÷ 1 1/5 = ?

(a) 1/6 Turn to page 145

(b) 3 Turn to page 140

(c) I need more help Turn to page 147

Good!

Now try this one.

5/6 ÷ 5 = ?

(a) 6/25 Turn to page 129

(b) 6 Turn to page 123

(c) 1/6 Turn to page 143

Correct!

Let's do another one.

1/3 ÷ 1 4/5 = ?

(a) 6 Turn to page 136

(b) 5/81 Turn to page 147

(c) 1 23/27 Turn to page 148

27/8 is correct!

1 4/5 ÷ 2 1/3 = ?

(a) 9/5 ÷ 7/3 Turn to page 144

(b) 6/5 ÷ 7/3 Turn to page 134

(c) 9/5 ÷ 1/6 Turn to page 134

Whoooops!

3 1/4 ÷ 2 3/7 = 13/4 ÷ 17/7.

2 1/5 ÷ 3 2/3 = ?

(a) 11/5 ÷ 11/3 Turn to page 149

(b) 11/5 x 11/3 Turn to page 90 in Booklet I

Very good! Your answer was correct.

2 2/3 ÷ 1 1/9 = ?

(a) 2 2/5 Turn to page 132

(b) 5/12 Turn to page 138

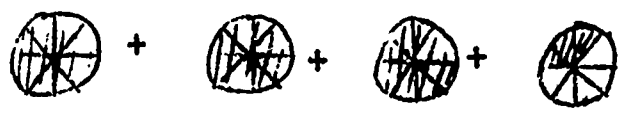
(c) I don't know how to work this problem
Turn to page 147

Correct!

1 4/5 ÷ 2 1/3 = ?

(a)	54/5	Turn to page 90 in Booklet I
(b)	27/35	Turn to page 132
(c)	63/15	Turn to page 138

Incorrect. You seem to be having trouble with mixed numbers. Let's look at it this way:

3 3/8 means 

How many sections of 1/8 are there?

(a) 27 Turn to page 149

(b) 4 Turn to page 150

Hey, you forgot the rule for division.

We multiply by the reciprocal of the divisor!

The divisor of $x/3 \div y/5$ is:

(a) $x/3$	Turn to page 158
(b) $y/5$	Turn to page 151
(c) 15	Turn to page 2 in Booklet I

When dividing integers or mixed numbers, we must always change them to fractions first.

EXAMPLE: 1 8/9 ÷ 3 = 17/9 ÷ 3/1

and 4 4/7 ÷ 2 1/3 = 32/7 ÷ 7/3

Write 3 3/8 as a fraction.

(a) 9/8 Turn to page 150

(b) 27/8 Turn to page 141

(c) 3/24 Turn to page 150

Correct!

1 1/3 ÷ 1 7/9 = ?

(a) 3/4 Turn to page 132

(b) 7/3 Turn to page 147

(c) 64/27 Turn to page 136

Correct!

2 2/3 ÷ 3 3/4 = ?

(a) 4/3 ÷ 9/4 Turn to page 147

(b) 2/6 ÷ 3/12 Turn to page 150

(c) 8/3 ÷ 15/4 Turn to page 137

You either need work with basic fractions or you were careless. Now:

$$3\ 3/8 = 3 + 3/8 = \frac{3 \times 8}{1 \times 8} + 3/8 = 24/8 + 3/8 = 27/8.$$

Did you notice what you did wrong?

(a)	I need more help	Go see your teacher and then return to page 147 of this Unit
(b)	I want to try again	Go to page 147 and make another choice

That's correct!

Now, in the problem x/3 ÷ y/5, we multiply x/3 by the reciprocal of the divisor and get:

(a) xy/15 Turn to page 158

(b) 5x/3y Turn to page 157

Whooops! Forgot to reduce your answer!

15a/24k reduced to lowest terms is:

(a) 3a/8k Turn to page 163

(b) 5a/8k Turn to page 154

You need some practice working with letters.

Go work Unit 2 and then return to page 132 of Booklet II of this Unit.

Correct!

The fraction 30a/48k reduced is:

(a) 5a/8k Turn to page 162

(b) 5a/4k Turn to page 159

Incorrect.

The easy way to find the RECIPROCAL of anything is:

(1) write it as a fraction, and then

(2) invert the fraction.

EXAMPLES: the reciprocal of y/5 is 5/y.

the reciprocal of K is 1/K.

What is the reciprocal of 2?

(a) 2/1 Turn to page 100 in Booklet I

(b) 1/2 Turn to page 160

Incorrect.

You seem to be having trouble reducing fractions.

Go review reduction of fractions in Unit 3, beginning on page 20. Then return to page 157 of this Unit.

5x/3y is correct. You are doing well.

3a/4 ÷ 6k/5 = ?

(a) 15a/24k Turn to page 152

(b) 24k/15a Turn to page 165

(c) 5a/8k Turn to page 162

What? Come on now. Look at this example.

$x/3 \div y/5$ reads that $x/3$ is to be divided by $y/5$.

Therefore, $y/5$ is the <u>DIVISOR</u>.

Now, the reciprocal of the divisor of the above example is:

(a)	I don't know	Turn to page 100 in Booklet I
(b)	$5/y$	Turn to page 160
(c)	$5y$	Turn to page 155

You are having trouble, aren't you?

Well, let's take an easy one.

Reduce the fraction 30/45.

(a) 2/3 Turn to page 168

(b) 6/5 Turn to page 156

Correct!

In the problem 5/a ÷ 3/k, the reciprocal of the divisor is:

(a)	a/5	Turn to page 158
(b)	k/3	Turn to page 151
(c)	5a	Turn to page 100 in Booklet I
(d)	3k	Turn to page 155

3m/5 is the right answer.

4y/5k ÷ 2y/3 = ?

(a) 12y/10ky Turn to page 152

(b) 6y/5ky Turn to page 164

(c) 6/5k Turn to page 167

5a/8k is the correct answer. You're doing fine.

3/x ÷ 4a/3x = ?

(a) 9x/4ax Turn to page 164

(b) 9/4a Turn to page 180

(c) 4/9a Turn to page 166

Incorrect.

$$15a/24k = \frac{\not{3} \times 5 \times a}{\not{3} \times 8 \times k} = 5a/8k.$$

Try this one.

Reduce 6x/15p.

(a) 3x/5p Turn to page 159

(b) 2x/5p Turn to page 154

Hey! Anything divided by itself is 1--even letters.

So reduce your answers.

EXAMPLES: (1) $k/k = 1$

(2) $3k/k = 3/1 \times k/k = 3/1 \times 1 = 3$

(3) $4p/2p = \frac{2 \times 2 \times p}{2 \times p} = 2.$

Reduce 6k/4k.

(a) 2/3k Turn to page 153

(b) 3/2 Turn to page 167

Incorrect.

Let's see how the problem was worked.

$$3a/4 \div 6k/5 = 3a/4 \times 5/6k = \frac{3 \times 5 \times a}{6 \times 4 \times k} = \frac{5 \times a}{2 \times 4 \times k} = 5a/8k.$$

Try this one.

$2a/5 \div 3k/10 = ?$

(a) $4a/3k$ Turn to page 170

(b) $20a/15k$ Turn to page 152

(c) $3ak/25$ Turn to page 75 in Booklet I

Wrong answer.

Here's how it is worked:

$$3/x \div 4a/3x = 3/x \times 3x/4a = \frac{3 \times 3 \times X}{4 \times a \times X} = 9/4a.$$

$3k/5 \div k/m = ?$

(a) $\frac{3k \times k}{5m}$ Turn to page 146

(b) $\frac{3km}{5k}$ Turn to page 164

(c) $\frac{3m}{5}$ Turn to page 161

Correct:

$3p/8a \div p/6 = ?$

(a) 9/4a Turn to page 180

(b) 9p/4ap Turn to page 164

(c) 4/9a Turn to page 158

How that wasn't so hard, was it?

$$30/45 = \frac{2 \times \cancel{3} \times \cancel{5}}{3 \times \cancel{3} \times \cancel{5}} = 2/3.$$

What does 14p/35k equal?

(a) 7p/5k Turn to page 156

(b) 2p/5k Turn to page 154

Incorrect.

Remember that you divide fractions by multiplying by the reciprocal of the divisor.

Go back to page 136 and be more careful when you make your next choice.

That was correct!

In the problem 4p/3 ÷ 2/f, you multiply __(1)__ by __(2)__.

(a) (1) 2/f by (2) 3/4p Turn to page 175

(b) (1) 4p/3 by (2) f/2 Turn to page 179

(c) (1) 3/4p by (2) f/2 Turn to page 75 in Booklet I

What? How did you get that? Maybe you are having trouble with reciprocals.

The reciprocal of 8k/5a is:

(a)	5a/8k	Turn to page 179
(b)	40ak	Turn to page 100 in Booklet I
(c)	5k/8a	Turn to page 155

Aw! You made the wrong choice. Don't you remember that a/b ÷ c/d reads that the fraction a/b is to be divided by c/d. Therefore, c/d is the <u>divisor</u>.

Now, the reciprocal of the divisor is:

(a)	cd	Turn to page 100 in Booklet I
(b)	c/d	Turn to page 155
(c)	d/c	Turn to page 189

Correct!

$\frac{1}{6}P \div 3a/2 = ?$

(a) P/6 x 2/3a Turn to page 182

(b) 1/6P x 2/3a Turn to page 190

Incorrect.

$\frac{1}{2}$d is the fraction d/2 and 4a is the fraction 4a/1.

Therefore, $\frac{1}{2}$d ÷ 4a = d/2 ÷ 4a/1 = d/2 x 1/4a = d/8a.

$\frac{1}{3}$k ÷ 6 = ?

(a) K/18 Turn to page 182

(b) 1/18K Turn to page 190

You almost had it! In the problem $4p/3 \div 2/f$, the $2/f$ is the divisor and, therefore, it is the number you invert.

$3c/7 \div 3/k = ?$

(a) $3c/7 \times k/3$ Turn to page 181

(b) $7/3c \times 3/k$ Turn to page 75 in Booklet I

Sorry! Wrong answer. Here's how you set it up:

$\frac{2}{3}p \div 6a = 2p/3 \div 6a/1.$

What do you get when you divide?

(a) p/9a Turn to page 173

(b) 9a/p Turn to page 146

d/c is the correct answer.

k/m ÷ p/q = ?

(a) mp/kq Turn to page 172

(b) kq/mp Turn to page 191

You almost had it!

In the problem a/b ÷ k, k is the <u>divisor</u>; and, therefore, the number for which you find the reciprocal.

$a/b \div k = ?$

(a) $a/b \times k/1$ Turn to page 193

(b) $a/b \times k/k$ Turn to page 158

(c) $a/b \times 1/k$ Turn to page 187

Correct again!

5a/6 ÷ 4k/3 = ?

(a) 10a/9k Turn to page 171

(b) 5a/8k Turn to page 162

Very good! 9/4a was correct.

$\frac{1}{2}$ d ÷ 4a = ?

(a) d/8a Turn to page 195

(b) 1/8ad Turn to page 185

(c) 2ad Turn to page 174

Correct!

$5r/3 \div 2t/9 = ?$

(a) $5r/3 \times 9/2t$ Turn to page 179

(b) $5r/3 \times 9t/2$ Turn to page 171

Correct.

$\frac{2}{3}p \div 6a = ?$

(a) 9a/p Turn to page 146

(b) p/9a Turn to page 195

(c) ap/9 Turn to page 176

You didn't read page 190 very well. Go back to page 190, reread the instructions, and make another selection.

Sorry, wrong answer.

We multiply by the reciprocal of the divisor.

Remember?

The reciprocal of c/d is:

(a)	cd	Turn to page 100 in Booklet I
(b)	d/c	Turn to page 177
(c)	c/d	Turn to page 193

Incorrect.

$\frac{1}{2}$ d is the fraction d/2, and 4a is the fraction 4a/1.

Therefore, $\frac{1}{2}$ d ÷ 4a = d/2 ÷ 4a/1 = d/2 x 1/4a = d/8a.

$\frac{1}{3}$ k ÷ 6 = ?

(a) k/18 Turn to page 182

(b) 1/18k Turn to page 190

Very good! a/bk is the correct answer. You have successfully completed this Unit. Let's briefly review what we have covered.

1. You have learned how to divide fractions of the form a/b by positive integers, where $0 < (a,b) < 100$.

2. You have learned how to divide fractions of the form a/b by fractions of the form c/d, where $0 < (a,b,c,d) < 100$.

3. You have learned how to divide mixed numbers by other mixed numbers, where the mixed numbers are of the form X a/b and $0 < (X,a,b) < 100$.

4. You have learned to divide fractions using letters.

5. You have learned to divide various combinations of problems made up of fractions, letters, mixed numbers, and integers listed above.

You are now ready for a test on this Unit. Go tell your teacher that you have finished.

Correct.

C ÷ p/q = ?

(a) C/1 x p/q Turn to page 146

(b) c/1 x q/p Turn to page 188

(c) 1/C x p/q Turn to page 172

C/1 x q/p is correct!

p/q ÷ K = ?

(a) Kq/p Turn to page 184

(b) q/Kp Turn to page 194

(c) p/Kq Turn to page 191

d/c is correct!

a/b ÷ c/d = ?

(a) a/b x d/c — Turn to page 192

(b) b/a x c/d — Turn to page 146

(c) b/a x d/c — Turn to page 90 in Booklet I

Incorrect. Let's look at an example.

$\frac{1}{3}$ K means 1/3 x K or 1/3 x K/1.

Therefore, $\frac{1}{3}$ K is the fraction K/3.

Write $\frac{2}{5}$ P as a fraction.

(a) 2/5p Turn to page 183

(b) 2p/5p Turn to page 153

(c) 2p/5 Turn to page 182

Very good.

$a/b \div K = ?$

(a) aK/b Turn to page 184

(b) b/aK Turn to page 194

(c) a/bK Turn to page 186

(d) bK/a Turn to page 178

Good! Your answer was correct.

p/q ÷ k/m = ?

(a) kq/pm Turn to page 172

(b) pm/kq Turn to page 191

Incorrect.

The easy way to find the reciprocal of anything is:

(1) write it as a fraction, and then

(2) invert the fraction.

EXAMPLES: (1) the reciprocal of K is 1/K

(2) the reciprocal of a/b is b/a.

What is the reciprocal of c/d?

(a) cd — Turn to page 100 in Booklet I

(b) d/c — Turn to page 177

You almost had it.

In the problem a/b ÷ K, K is the <u>divisor</u>; and, therefore, the number for which you find the reciprocal.

a/b ÷ K = ?

(a) a/b x K/1 Turn to page 193

(b) a/b x K/K Turn to page 158

(c) a/b x 1/K Turn to page 187

Your answer was correct.

$a/b \div c/d = ?$

(a) ac/bd Turn to page 184

(b) ad/bc Turn to page 191

(c) bc/ad Turn to page 172

NORTHWEST REGIONAL EDUCATIONAL LABORATORY
400 Lindsay Building 710 S. W. Second Avenue
Portland, Oregon 97204

CAI MATHEMATICS

TEST QUESTIONS

UNIT 7 - DIVISION OF FRACTIONS

Directions: The correct answers will always be expressed in lowest terms.

1. The quotient of 6 divided by 3 is

   a) 18

   b) 9

   c) 2

2. 2/3 divided by 6 is

   a) 9

   b) 4

   c) 1/9

3. 2/3 divided by 3/4 is

   a) 9/8

   b) 8/9

   c) 1/2

4. 2 1/3 divided by 2 4/5 is

   a) 5/6

   b) 5/12

   c) 98/15

5. g/n divided by p/q equals

   a) hp/gq

   b) gq/hp

   c) gp/hq

Unit 7 (continued)

6. a/c divided by 2/3

   a) 2a/3c

   b) 3a/2c

   c) 2c/3a

7. The quotient of 1/2 divided by 4/5 is

   a) 8/5

   b) 2/5

   c) 5/8

8. $\frac{3/4}{2}$ =

   a) 3/8

   b) 3/2

   c) 2:2/3

9. The word "Quotient" means that two numbers have been

   a) ivided

   b) multiplied

   c) added

10. 3 1/3 ÷ 5/6 =

   a) 5 1/2

   b) 4

   c) 2 7/9

11. 1 1/2 divided by 1 3/4 is

   a) 7/6

   b) 5/9

   c) 6/7

Unit 7 (continued)

12. 2a/y divided by c/3d=

    a) 6yc/ad

    b) 2ac/3yd

    c) 6ad/yc

13. c/d divided 3 =

    a) 3c/d

    b) c/3d

    c) 3/cd

14. 7/12 divided by 2/3 is

    a) 7/18

    b) 1 1/7

    c) 7/8

15. 4 1/8 ÷ 2 3/4 =

    a) 1 1/2

    b) 2/3

    c) 2 1/6

16. 0 divided 2/3 is

    a) no solution

    b) 3/2

    c) 0

17. 5/6 divided by 1 equals

    a) 1 1/5

    b) 5/6

    c) 1 1/6

Unit 7 (continued)

18. 8/9 divided by 3/4 =

a) 32/27

b) 2/3

c) 27/32

19. 2a/3b divided by c/6d =

a) 4ac/bd

b) 4ad/bc

c) ad/4bc

20. $\frac{3\ 2/3}{3\ 1/7}$ =

a) 1 1/6

b) 4: 2/3

c) 6/7

21. What is 5/6 divided by 10/13 ?

a) 25/39

b) 12/13

c) 1 1/12

22. (2 2/3) ÷ (2) =

a) 3/4

b) 3. 1/3

c) 4/3

23. $\frac{d/c}{b/a}$ =

a) ab/dc

b) ad/bc

c) bc/ad

Unit 7 (continued)

24. 3/4 divided by 0 =

    a) 0

    b) no solution

    c) 3/4

25. 3/8 divided by 9/4 =

    a) 1/6

    b) 155/27

    c) 6

ANSWER SHEET

Unit 7 - Division of Fractions

1. c
2. c
3. b
4. a
5. b
6. b
7. c
8. a
9. a
10. b
11. c
12. c
13. b
14. c
15. a
16. c
17. b
18. a
19. b
20. a
21. c
22. c
23. b
24. b
25. a

To the instructor: The above problems are related to the objectives as follows:

OBJECTIVE 1 : Questions 1,7,9

OBJECTIVE 2 : Questions 2,8,13,17

OBJECTIVE 3 : Questions 3,7,14,18,25

OBJECTIVE 4 : Questions 4,11,15,20

OBJECTIVE 5 : Questions 5,12,19,23

OBJECTIVE 6 : All the questions are related to this objective, however, the following are not specifically covered in the other objectives. Questions 6,10,16,22,24

0 (REV. 9-66)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION

ERIC REPORT RESUME

ERIC ACCESSION NO.

CLEARINGHOUSE ACCESSION NUMBER

RESUME DATE: June 1968 | P.A. | I.A.

IS DOCUMENT COPYRIGHTED? YES [ ] NO [X]

ERIC REPRODUCTION RELEASE? YES [X] NO [ ]

TITLE

Occupational Mathematics - DIVISION OF FRACTIONS

PERSONAL AUTHOR(S)

Rahmlow, Harold; Ostheller, Karl; Potratz, Clarence; Winchell, L.; Snoey, Arthur

INSTITUTION (SOURCE)

Washington State University, Pullman, Washington, Dept. of Education — SOURCE CODE

REPORT/SERIES NO. Final Report No. 16-H

OTHER SOURCE — SOURCE CODE

OTHER REPORT NO.

OTHER SOURCE — SOURCE CODE

OTHER REPORT NO.

PUB. DATE June 1968 — CONTRACT GRANT NUMBER OEG-4-7-070031-1626

PAGINATION, ETC.

199 pages

RETRIEVAL TERMS

Occupational mathematics
Programmed instruction
Division of fractions

IDENTIFIERS

Vo-Tech. Education Research and Development Project (no. 7-0031)

ABSTRACT

One book of a 21-book series of programmed instruction materials designed to help pupils acquire mathematics capabilities most useful in sub-professional level occupations. Other programmed books in the series are:

Symbols
Representing Numbers by Letters
Equivalent Forms
Fraction and Ratio
Addition of Fractions
Subtraction of Fractions
Multiplication of Fractions
Concepts of Decimals and Fractions
Addition and Subtraction of Decimals
Multiplication of Decimals
Division of Decimals
Conversion of Fractions into Decimals
Equivalent Forms of A = BC
Solutions of A = BC
Percentage
Commutative Law
Reciprocals
Scientific Notation
Proportions
Concepts of Number Bases